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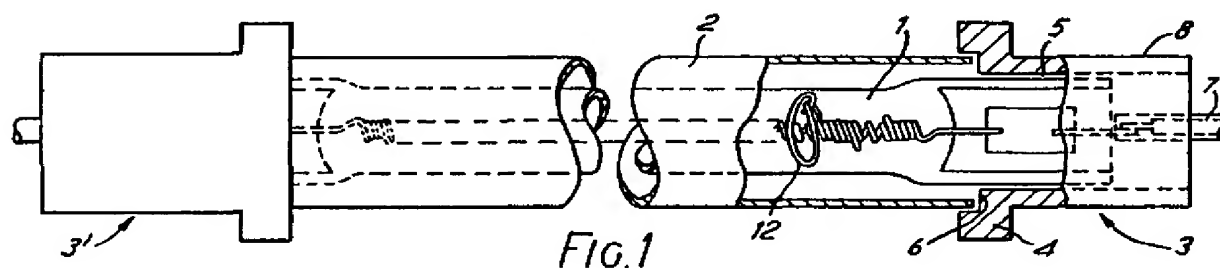
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(54) **Jacketed linear lamps**

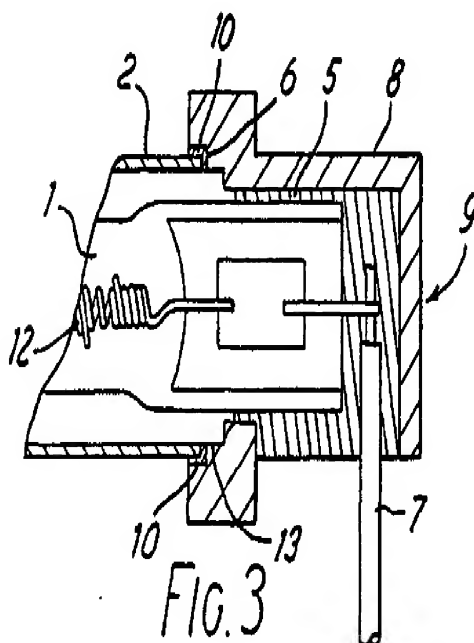
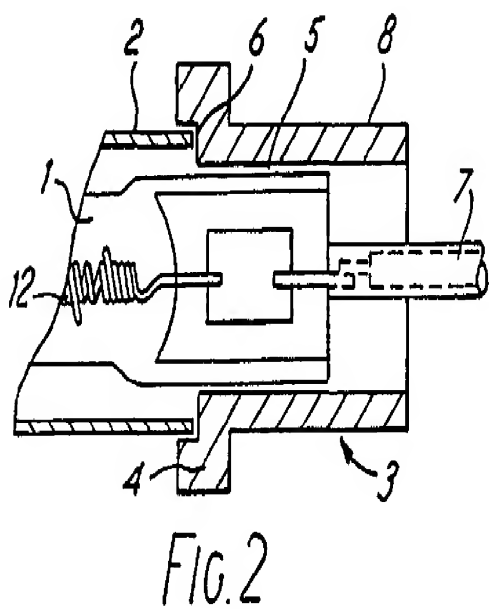
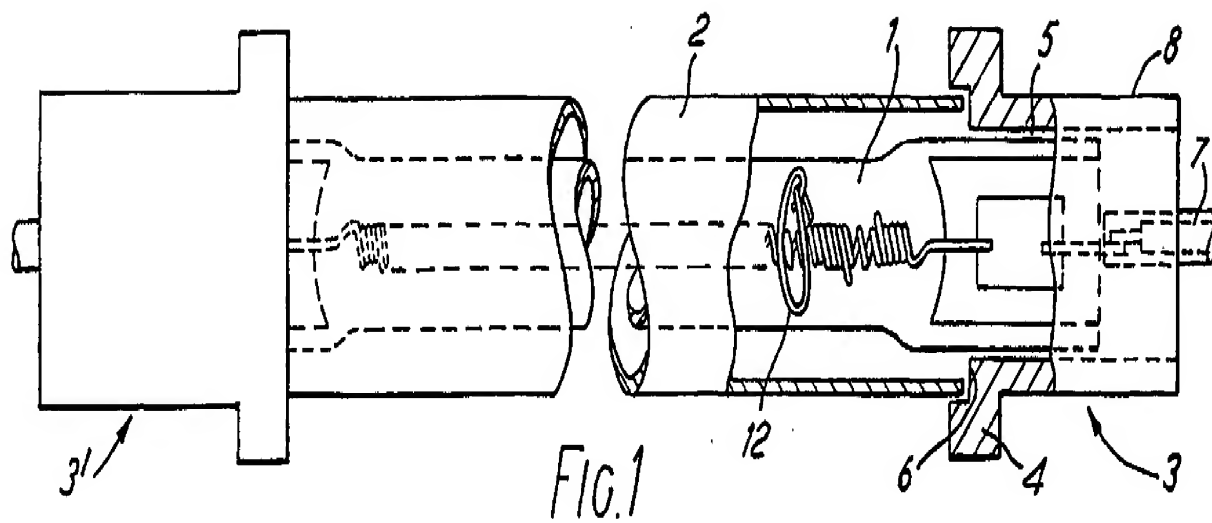
(57) A jacketed linear lamp has an outer sleeve 2 which is supported coaxially to the inner lamp 1 at a predetermined fixed distance by means of a cap 3, 3' fitted over each end of the lamp.

An end cap for a jacketed linear lamp comprises a first section 8 having a recess 5 for receiving an end of the inner lamp and a second section 4 of greater diameter than the first, for supporting the outer sleeve.

The sleeve may act as a filter, a protective sleeve or a safety screen.



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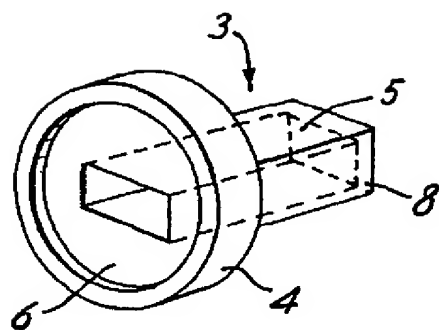


FIG. 4A

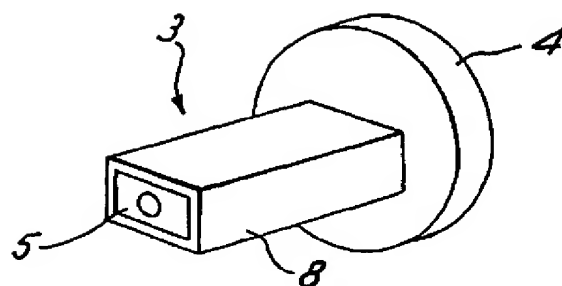


FIG. 4B

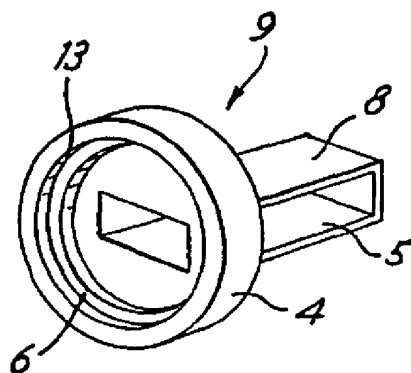


FIG. 5A

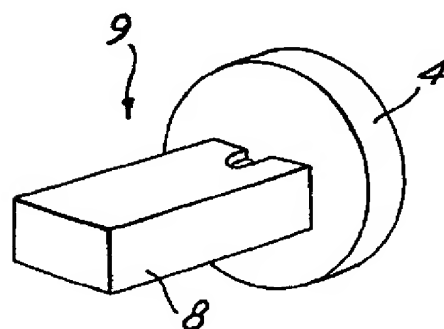


FIG. 5B

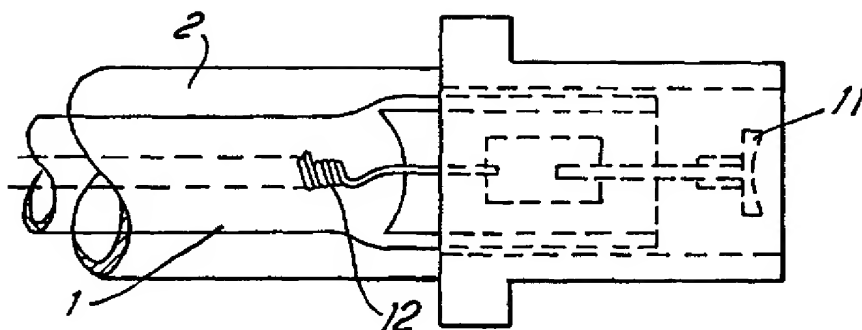


FIG. 6

SPECIFICATION

Jacketed linear lamps

- 5 This invention relates to linear lamps having an inner bulb and an outer sleeve.

Quartz infrared lamps with power ratings of between 500W and 2000W are well known.

- 10 In particular, lamps of linear configuration which operate on the tungsten halogen cycle and which have filament temperatures in the range of 2000K–2600K are now commonly used. Their applications include paint drying, plastic moulding and the drying of ink in copy-
- 15 ing machines. For many uses, for example space heating and comfort heating, where relatively short wavelength infrared can be radiated efficiently, the light from the lamps described above is objectionable since it causes glare. In such cases, only the radiation which produces heat is required, perhaps together with some radiation at the red end of the visible spectrum to produce a "warm" effect.

- 20 It is known to achieve this desired effect by using a transparent or translucent red coloured quartz bulb joined to clear tubes at each end. It is however difficult to carry out the joining process since the red coloured glass is a poor absorber of heat and will not readily become
- 25 sufficiently workable for joining.

- Alternatively, a lamp may include a clear quartz bulb surrounded by a red tube as a loose, separate sleeve to achieve the same effect. The tube acts as a red filter and also
- 30 as a protective sleeve. A problem with the provision of a loose sleeve is that it may be wrongly positioned or not sufficiently evenly spaced from the inner lamp.

- It is an object of the invention to provide a more satisfactory form of jacketed lamp comprising an inner lamp and an outer sleeve or envelope.

- According to the invention there is provided a jacketed linear lamp comprising an inner
- 40 lamp, the inner lamp having a linear filament supported within a bulb, and an outer sleeve, the sleeve being supported coaxially to the inner lamp at a predetermined fixed distance from the bulb by means of a cap fitted over
- 45 each end of the lamp.

- According to a further aspect of the invention there is provided an end cap for a jacketed linear lamp, said lamp comprising an inner lamp and an outer sleeve, the end cap
- 50 comprising a first section having a recess for receiving an end of the inner lamp and a second section of greater diameter than the first section, for supporting the outer sleeve.

- In order that the invention may be clearly understood and readily carried into effect it will now be described by way of example with reference to the accompanying drawings, of which:

- 60 *Figure 1* shows a lamp according to the invention,

Figures 2 and 3 show detail of different embodiments of end caps holding the inner lamp and supporting the outer sleeve,

- 70 *Figures 4A and 4B* are perspective views of the end cap shown in *Fig. 2* (not fixed to the lamp),

Figures 5A and 5B are perspective views of the end cap shown in *Fig. 3*, and

- 75 *Figure 6* shows one end of a lamp having a recess dish type connector.

- Referring first to *Fig. 1*, one end of the inner lamp 1 is received in recess 5 in cap 3. The other end of lamp 1 sits in a similar recess in cap 3'. In the particular embodiment illustrated, the lamp is a tungsten halogen infrared linear lamp which has a filament 12 operating at a colour temperature of 2000K–2600K, but the invention applies to any linear lamp. The inner bulb may be made
- 80 from a material of high silica content such as clear quartz, or Vycor. Here, the inner bulb has a pinch seal at each end and the caps are of insulating material such as a ceramic. The caps may be cemented to the bulb ends. If each cap has a part 8, for receiving an end of the inner lamp, which is of rectangular cross-section (as in the preferred embodiment), this allows the lamp to be accurately retained in a fixture.

- 95 The caps may each have a section 4 of greater diameter than that receiving the end of the inner lamp, this section supporting the outer sleeve 2 of the lamp. The large diameter section may have a step 6 to support the outer sleeve, on which the sleeve is held loosely or cemented. Alternatively the sleeve may be held between a pair of concentric ridges protruding from the cap or supported in a recess in the section of larger diameter.

- 100 The sleeve 2 may be colourless or, for example, red or ruby coloured. It is generally transparent but may be translucent. A translucent sleeve gives a more diffused beam. The sleeve is preferably quartz, Vycor or a high temperature glass such as aluminosilicate or borosilicate (Pyrex—registered trade mark). Materials having a high silica content, such as quartz or Vycor, are generally more efficient transmitters of infrared radiation.

- 115 The purpose of the sleeve may be for protection or to act as a filter. It may also act as a safety screen, for example, when the lamp is used for cooking purposes, to prevent devitrification of the quartz bulb by cooking vapours.

- 120 An electrical end connection may be provided to each end of the lamp through the end caps. This may be, preferably, via a flying lead 7 shown in *Figs. 1 to 3*, a push on connector or a recess dish type connector.

- 125 *Fig. 2* shows a schematic view of an end cap 3 for a lamp, as in *Fig. 1*. Recess 5 may be filled with cement to hold the end of the inner lamp.

- 130 *Fig. 3* shows a preferred embodiment 9 of

an end cap according to the invention. This cap has a side rather than an end opening and a flying lead 7, for making electrical contact with the lamp 1, enters the side of the cap.

- 5 This allows lamps to be butted end to end, which is not possible when the outgoing contacts are at the ends of the lamps. Recess 5 is cement-filled to hold the end of the inner lamp and the connectors. A stepped arrangement 13 supports the sleeve 2. In this case
10 cement 10 holds the sleeve to the cap.

Fig. 4A shows a perspective view of an end cap 3 as represented in Fig. 2, and Fig. 4B shows an opposing perspective view of the same end cap.

- 15 Figs. 5A and 5B show opposing perspective views of the end cap 9 represented in Figs. 3.

- Fig. 6 shows an end cap within which electrical contact to the lamp is made via a recess dish type connector 11.
20

CLAIMS

1. A jacketed linear lamp comprising an inner lamp, the inner lamp having a linear filament supported within a bulb, and an outer sleeve, the sleeve being supported coaxially to the inner lamp at a predetermined fixed distance from the bulb by means of a cap fitted over each end of the lamp.
25

2. A jacketed linear lamp according to Claim 1 in which the inner lamp has a pinch seal at each end.
30

3. A jacketed linear lamp according to Claim 1 or Claim 2 in which the caps are made from insulating material.
35

4. A jacketed linear lamp according to Claim 3 in which the caps are ceramic.

5. A jacketed linear lamp according to any one of the preceding claims in which the caps each have a part which is rectangular in cross-section.
40

6. A jacketed linear lamp according to any one of the preceding claims in which each cap has a first section for receiving one end of the inner lamp and a second section, of greater diameter than the section for receiving the end of the inner lamp, which supports the outer sleeve.
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7. A jacketed linear lamp according to Claim 6 in which said second section has a step on which the outer sleeve is supported.
50

8. A jacketed linear lamp according to Claim 7 in which the sleeve is held loosely on the step.

9. A jacketed linear lamp according to Claim 7 in which the sleeve is cemented to the step.
55

10. A jacketed linear lamp according to any one of the preceding claims in which the inner lamp is a tungsten halogen lamp.
60

11. A jacketed linear lamp according to any one of the preceding claims in which the sleeve is transparent.

12. A jacketed linear lamp according to any one of Claims 1 to 10 in which the sleeve
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is translucent.

13. A jacketed linear lamp according to any one of the preceding claims in which the sleeve is of high silica content material.

14. A jacketed linear lamp according to Claim 13 in which the sleeve is quartz.
70

15. A jacketed linear lamp according to Claim 13 in which the sleeve is Vycor.

16. A jacketed linear lamp according to any one of Claims 1 to 12 in which the sleeve is aluminosilicate glass.
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17. A jacketed linear lamp according to any one of Claims 1 to 12 in which the sleeve is borosilicate glass.

18. A jacketed linear lamp according to any one of the preceding claims in which the sleeve is colourless.
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19. A jacketed linear lamp according to any one of Claims 1 to 17 in which the sleeve is red.
85

20. A jacketed linear lamp substantially as herein described with reference to the accompanying drawings.

21. An end cap for a jacketed linear lamp, said lamp comprising an inner lamp and an outer sleeve, the end cap comprising a first section having a recess for receiving an end of the inner lamp and a second section of greater diameter than the first section, for supporting the outer sleeve.
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22. An end cap according to Claim 21 in which the first section is of rectangular cross-section.
95

23. An end cap according to Claim 21 or Claim 22 in which said second section has a step on which the outer sleeve is supported.
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24. An end cap according to Claim 21 or Claim 22 in which said second section has a recess for supporting said outer sleeve.

25. An end cap according to any one of Claims 21 to 24 made from insulating material.
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26. An end cap according to Claim 25 in which the insulating material is a ceramic.

27. An end cap substantially as herein described with reference to the accompanying drawings.
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